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Appl. No.	:	10/650,011
Applicant	:	DONNELLY et al.
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TC/A.U.	:	3617
Examiner:	:	ROBERT J. McCARRY, JR.
Docket No.	:	5107-4
Customer No.	:	22442
Title:	:	"METHOD FOR MONITORING AND CONTROLLING LOCOMOTIVES"

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COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Dear Sir:

Applicant submits this Comments on Statement of Reasons for Allowance to address further the Notice of Allowability ("Notice") having a mailing date of April 28, 2005 (Paper No. 20050413).

In the Notice, the Examiner's stated reasons for allowance were a paraphrase of the text of independent claim 1. Based on the Notice, the patentability of all other independent and dependent claims is assumed to be based upon the elements as set forth in such claims, and it is assumed that such claims meet all criteria for patentability under §101, §102, §103 and §112.

As is clear from MPEP 1302.14,

> "The statement [of reasons for allowance] is not intended to necessarily state all the reasons for allowance or all the details why claims are allowed and should not be written to specifically or impliedly state that all the reasons for allowance are set forth."

While Applicant agrees that the above-stated reason is a reason for allowing independent claim 1, Applicant submits that some independent claims have different reasons for allowance and that some independent claims have other reasons for allowance.

Specifically, the prior art fails to teach the following features of independent Claims 5, 8, 11, 15, 19, 23, 29, 35, 40, 45, and 47:

> 5. A locomotive, comprising:
> a plurality of direct current traction motors in communication with a plurality of axles;
> a prime energy source;
> an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;
> an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity;
> a plurality of electrical storage subunits to receive, store, and supply the direct current electricity, wherein in a first mode the electrical storage subunits are connected electrically in series and in a second mode the electrical storage subunits are connected electrically in parallel; and
> at least one switch to switch the electrical storage subunits between the first and second modes.
>
> 8. A locomotive, comprising:
> a plurality of direct current traction motors in communication with a plurality of axles;
> a prime energy source;
> an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;
> an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity, wherein the energy storage device comprises a plurality of capacitors operable to store the stored energy; and
> a pulse forming network to maintain the output power pulses of the energy storage device at least substantially constant in magnitude.
>
> 11. A locomotive, comprising:
> a plurality of traction motors in communication with a plurality of axles;
> a prime energy source for providing power to the plurality of traction motors; and

a plurality of air brake systems operatively engaging a respective one of the plurality of axles, each air brake system comprising at least one movable braking surface element and corresponding air-brake cylinder and a fluid-activated brake release, wherein, when a moveable braking surface element is locked in position against a braking surface, fluid pressure is applied against the braking surface by the fluid-activated brake release to disengage the locked moveable braking surface from the braking surface.

15. A locomotive, comprising:

a plurality of direct current traction motors in communication with a plurality of axles;

a prime energy source;

an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;

an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity;

a controller operable to control an excitation current to the energy conversion device, wherein at least one of the following statements is true:

(i) when a first predetermined set point is exceeded by a first monitored parameter, the excitation current is increased and, when a second predetermined set point is exceeded by the first monitored parameter, the excitation current is decreased and wherein the first monitored parameter is revolutions per minute of a mechanical component of the prime energy source and

(ii) when the first predetermined set point is exceeded by a second monitored parameter, the excitation current is decreased and, when the second predetermined set point is exceeded by the second monitored parameter, the excitation current is increased and wherein the second monitored parameter is the output power of the energy conversion device.

19. A method for providing electrical energy to an energy storage device in a locomotive, comprising:

(a) providing a locomotive comprising:

(i) a plurality of direct current traction motors in communication with a plurality of axles;

(ii) a prime energy source;

(iii) an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity; and

(iv) an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity; and

(b) controlling an excitation current to the energy conversion device by performing at least one of the following steps:

(i) when a first predetermined set point is exceeded by a first monitored parameter, the excitation current is increased and, when a second predetermined set point is exceeded by the first monitored parameter, the excitation current is decreased and wherein the first monitored parameter is revolutions per minute of a mechanical component of the prime energy source and

(ii) when the first predetermined set point is exceeded by a second monitored parameter, the excitation current is decreased and, when the second predetermined set point is exceeded by the second monitored parameter, the excitation current is increased and wherein the second monitored parameter is the output power of the energy conversion device.

23. A locomotive, comprising:

a plurality of direct current traction motors in communication with a plurality of axles;

a prime energy source;

an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;

an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity;

a controller operable to (i) monitor an operational parameter of each of the plurality of axles and/or traction motors, wherein the monitored operational parameter includes (a) an electrical current and/or voltage output by the energy storage device and (b) a state of charge and/or voltage of the energy storage device, and (ii) in response to the monitored operational parameter, control operation of the prime energy source.

29. A method for controlling the operation of a locomotive, comprising:

(a) providing a locomotive, the locomotive comprising:

(i) a plurality of direct current traction motors in communication with a plurality of axles;

(ii) a prime energy source;

(iii) an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity; and

(iv) an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity;

(b) monitoring an operational parameter of each of the plurality of axles and/or traction motors, wherein the monitored operational parameter includes (a) an

electrical current and/or volts output by the energy storage device and (b) a state of charge and/or voltage of the energy storage device and

(c) in response to the monitored operational parameter, controlling activation and deactivation of the prime energy source to control provision of direct current electricity to the energy storage device.

35. A locomotive, comprising:

a plurality of direct current traction motors in communication with a plurality of axles;

a prime energy source;

an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;

an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity;

a user interface operable to receive a command from an operator to control a locomotive speed at a specified velocity; and

a controller operable to control the velocity of the locomotive at or near the specified velocity by performing at least one of the following steps:

(i) maintaining a substantially constant power across each of the plurality of traction motors, the power being related to the specified velocity; and

(ii) maintaining the revolutions per minute of each of the plurality of axles at a rate related to the specified velocity.

40. A method for operating a locomotive, comprising:

(a) providing a locomotive, the locomotive comprising:

(i) a plurality of direct current traction motors in communication with a plurality of axles;

(ii) a prime energy source;

(iii) an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;

(iv) an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity; and

(v) a user interface operable to receive a command from an operator to control a locomotive speed at a specified velocity; and

(b) controlling the velocity of the locomotive at or near the specified velocity by performing at least one of the following steps:

(i) maintaining a substantially constant power across each of the plurality of traction motors, the power being related to the specified velocity; and

(ii) maintaining the revolutions per minute of each of the plurality of axles at a rate related to the specified velocity.

45. A power control system for a locomotive, comprising:

a plurality of direct current traction motors in communication with a plurality of axles;

a prime energy source;

an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;

an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive, store, and supply the direct current electricity;

a user interface operable to receive a command from an operator to control a locomotive speed at a specified velocity;

a controller operable to determine an electrical current passing through each of a plurality of direct current traction motors; and

a graphical user interface operable to display a current power being delivered by the energy storage device, a voltage of the energy storage device, an electrical current of the energy storage device, and a state of charge of the energy storage device to permit the operator to monitor a state of the energy storage device.

47. A power control method for a locomotive, comprising:

providing a locomotive comprising:

(i) a plurality of direct current traction motors in communication with a plurality of axles;

(ii) a prime energy source;

(iii) an energy conversion device, in communication with the prime energy source, to convert the energy output by the prime energy source into direct current electricity;

(iv) an energy storage device, in communication with the energy conversion device and the plurality of traction motors, to receive and store the direct current electricity;

(v) a user interface operable to receive a command from an operator to control a locomotive speed at a specified velocity;

displaying a current power being delivered by the energy storage device, a voltage of the energy storage device, an electrical current from the energy storage device, and a state of charge of the energy storage device; and

receive commands from the operator in response to the displayed information.

Applicant wishes to clarify the intended meaning of certain claim language in light of the Federal Circuit decision "SuperGuide Corporation v. DirecTV Enterprises, Inc., et al., 358 F.3d 870 (Fed. Cir. 2004). In that decision, the Federal Circuit held, under the unique facts of that case, that

the phrase "at least one of a desired program start time, a desired program end time, a desired program service, and a desired program type" means "at least one of a desired program start time, at least one of a desired program end time, at least one of a desired program service, and at least one of a desired program type".

Applicant has used the phrases "at least one of" and "and/or" in a number of claims and wishes to clarify to the Examiner the proper construction of the phrases. Applicant intended each of the phrases "at least one" and "and/or" as used in the claims to be an open-ended expression that is both conjunctive and disjunctive in operation. For example, each of the expressions "at least one of A, B and C" and "A, B, and/or C" means A alone, B alone, C alone, A and B together, A and C together, B and C together, or A, B and C together. Applicant believes that this construction is consistent with the Examiner's construction of the claims in the file history of the above application. If the Examiner disagrees with this construction, Applicant respectfully requests that the Examiner notify Applicant accordingly so that Applicant can further amend the claims.

Although the Applicant believes that no fees are due for filing this Comments on Statement of Reasons for Allowance, please charge any fees deemed necessary to Deposit Account No. 19-1970.

Respectfully submitted,

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